PATENT SPECIFICATION 974,786

DRAWINGS ATTACHED.

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974,786

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Index at Acceptance:—H2 E(3A1, 3A2, 2A5, 3A10C3, 3A11B, 3C2C, 3C2E, 3D2); H2 B(1N3, 1N10, 2C6C2, 2C9, 2D).

International Classification:—H 02 f (H 02 c).

COMPLETE SPECIFICATION.

Improvements in and relating to Electrical Connectors.

We, RENDAR INSTRUMENTS LIMITED, a British Company, of Victoria Road, Burgess Hill, Sussex, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to electrical connectors and the invention has for its object to provide a socket, for the reception of a jack plug.

The invention consists broadly of a jack socket, comprising a body of insulating material, an aperture in said body for the reception of the jack plug, one or more recesses in a face of the body extending into said aperture and at least one contact mounted in the recess or one of the recesses, said contact being secured by a straight flat portion passing into a slot in the body.

Other features and advantages of the invention will appear from the following description of embodiments thereof given by way of example, in conjunction with the drawings accompanying the Provisional Specification of Application No. 1705/60, (which for convenience will hereinafter be called "the first drawings") in which:—

Figure 1 is a plan view, partly in section of a socket;

Figure 2 is a side elevation of the same socket; and

Figure 3 is an end view, from the rear, of the socket shown in Figures 1 and 2;

and the drawings accompanying the Provisional Specification of Application No. 12381/60 (which will hereinafter be called "the second drawings") in which:—

Figure 1 is a plan view of a socket according to this invention, for the reception of a standard G.P.O. type jack having three conductors, tip, ring and sleeve.

Figure 2 is a side view of the socket shown in Figure 1.

Figure 3 is a rear end view i.e. viewed from the left in Figures 1 and 2, of the socket of Figures 1 and 2.

The socket shown in the first drawings is intended for use with a miniature jack plug of the tip and sleeve type, and comprises a body 10 of insulating material; conveniently the body is moulded from an insulating material such as nylon or polypropylene. The body is formed with a central aperture 11, which extends through it from one end to the other, and co-axial with this aperture is a metal mounting sleeve 11^1, conveniently moulded as an insert in the body. The body is intended to be held by being passed through an opening in a suitable support panel, and then secured by a washer 12 and nut 13, the latter engaging a thread on the sleeve 11^1.

The body is formed with two transverse slots 14 and 15, which extend from the upper face of the body to approximately the diameter of the aperture 11. In these slots are aranged respectively moving contacts 16, 17 the contacts being of generally inverted L-shape with the angle of the L curved, as indicated at 18 in Figure 3, so that despite the small size of the contact it has a substantial degree of resilience. The contacts are secured by being passed through open-sided slots indicated at 20 and 21, the contacts being inserted from the upper sur-

face of the body. When so inserted a portion 22, 23 of the contacts projects below the surface of the body, to provide a soldering tag for connection to the moving contacts.

On the opposite face of the body are similarly secured two stationary contacts 24, 25. In the construction shown it is arranged that contacts 16 and 24 are normally open, and close on the insertion of a plug jack, whilst contacts 17 and 25 are normally closed and open on the same insertion of the jack. Accordingly, contact 25 is arranged as shown in Figure 3 with its upper end turned inwardly so as to lie below the end of the moving contact 17. Contact 24 has its upper end turned over and lies above the end of its associated moving contact 16. When the plug is inserted through the mounting sleeve 11, the pointed tip causes the two moving contacts 16 and 7 to move upwardly, thereby to break connection between contacts 17 and 25 and to establish connection between contacts 16 and 24. If it is required that simple, non-switching, operation of the socket is required the contacts such as 24 and 25 can be omitted.

The contacts can be held frictionally in the body but it is preferred that they should be retained in the body more positively, for example by means of small indentations such as 26, 27. Small tongues made in this way enter the surface of the body adjacent the contact and hold it against removal.

A further form of the invention is shown in the second drawings. While this has some similarity to the form of the invention first described, this latter construction is preferred for standard size jack plugs.

The socket shown in the second drawings has a body 30 of insulating material moulded from polypropylene or nylon. The body has a central aperture 31, extending throughout its length. At its right hand end there is an integral cylindrical extension 32, whose outer surface is screw-threaded; the socket is mounted on a panel or the like by passing the extension 32 through an opening in the panel, and holding it by nut 34. Spacing washers 33, of different thicknesses, can be used as necessary. In this construction, nut 34 and washers 33 can all be of insulating material if desired.

The body 30 has three transverse slots 35, 36, 37 formed in its upper portion and extending down to about the middle of the aperture 31; these slots are of slightly differing depths. Each slot accommodates a movable contact such as 38, which is of inverted L-shape the two portions being connected by a spring loop as can be seen from Figure 3. Hence there is a substantial degree of resilience of the free part of the contacts. The contacts are held on the body by means of open sided slots, such as 40, formed in the side of the body, into which the contacts are inserted from above; after having been so inserted small tongues 39 are punched out of the contacts, to penetrate slightly into the material of the body, to afford a secure attachment of the contact to the body.

On the opposite face of the body are secured three stationary contacts 41; these are secured to the body in the same way as contacts 38, each contact being received in a slot in the body, and then held by striking a tongue out of the contact to penetrate slightly into the material of the body. It will be seen from Figures 2 and 3 of the second drawings that these contacts are all normally closed, that is each movable contact is in engagement with the corresponding stationary contact when the jack plug is not inserted. When a jack plug is inserted, the three contact pairs shown in the figures are opened, the tip, ring and sleeve contact-making portions of the plug then being connected to the movable contacts. It can also be arranged that some or all of the contacts are "make" or "changeover" contacts, if desired.

It will be observed that the three movable contacts in the socket shown are identical in shape, as are the three stationary contacts but the slots 35, 36, 37 in which the movable contacts are located are of differing depths to accommodate the successive portions of a jack of the tip, ring and sleeve type.

WHAT WE CLAIM IS:—

1. A jack socket comprising a body of insulating material, an aperture in said body for the reception of the jack plug, one or more recesses in a face of the body extending into said aperture and at least one contact mounted in the recess or one of the recesses, said contact being secured by a straight flat portion passing into a slot in the body.

2. A jack socket in accordance with Claim 1, wherein said flat portion has a tongue or the like struck out of the flat portion to penetrate into the adjacent surface of the body, and so retain the contact in position.

3. A jack socket in accordance with Claim 2, wherein said contact is secured by a plurality of such tongues or the like.

4. A jack socket in accordance with any of the preceding claims, wherein said contact is composed principally of strip metal, formed to approximately "L"-shape.

5. A jack socket in accordance with Claim 4, wherein the arms of the "L" are formed by a curved section, to provide increased resiliency.

6. A jack socket in accordance with any of the preceding claims, and comprising a further contact disposed in said recess, co-

operating with the first contact on insertion or removal of said plug.

7. A jack socket in accordance with Claim 6, wherein said further contact is secured by a further straight flat portion passing into a further slot in the body.

8. A jack socket in accordance with Claim 7, wherein the further straight flat portion has a tongue or the like struck out of the flat portion and penetrating into the adjacent surface of the body.

9. A jack socket in accordance with Claim 8, wherein said further contact is secured by a plurality of such tongues or the like.

10. A jack socket in accordance with any of the preceding claims, and comprising a plurality of contacts mounted on said body.

11. A jack socket in accordance with any of Claims 6 to 9 and 10, and comprising a plurality of said further contacts on said body.

12. A jack socket in accordance with any of the preceding claims, and comprising a mounting means for said body, including a threaded member through which said aperture extends.

13. A jack socket in accordance with Claim 12, wherein said threaded member is moulded as an insert in the body.

14. A jack socket in accordance with Claim 12, wherein said threaded member is an integral extension of said body.

15. An improved jack socket substantially as herein described with reference to the first or second drawings.

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974786 PROVISIONAL SPECIFICATION No. 1705/60
1 SHEET *This drawing is a reproduction of the Original on a reduced scale*

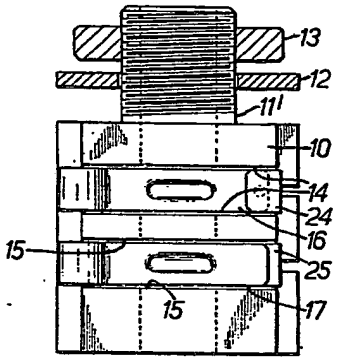

FIG. 1.

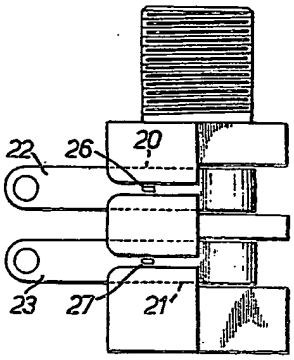

FIG. 2.

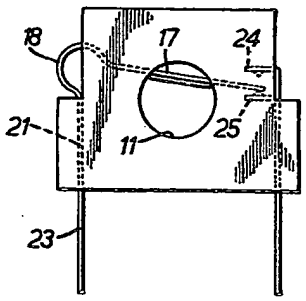

FIG. 3.

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1 SHEET *This drawing is a reproduction of the Original on a reduced scale*

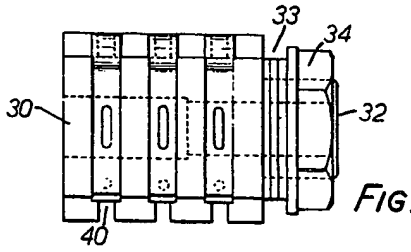

FIG. 1.

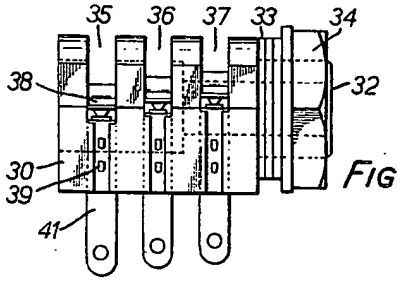

FIG. 2.

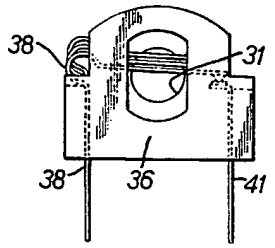

FIG. 3.